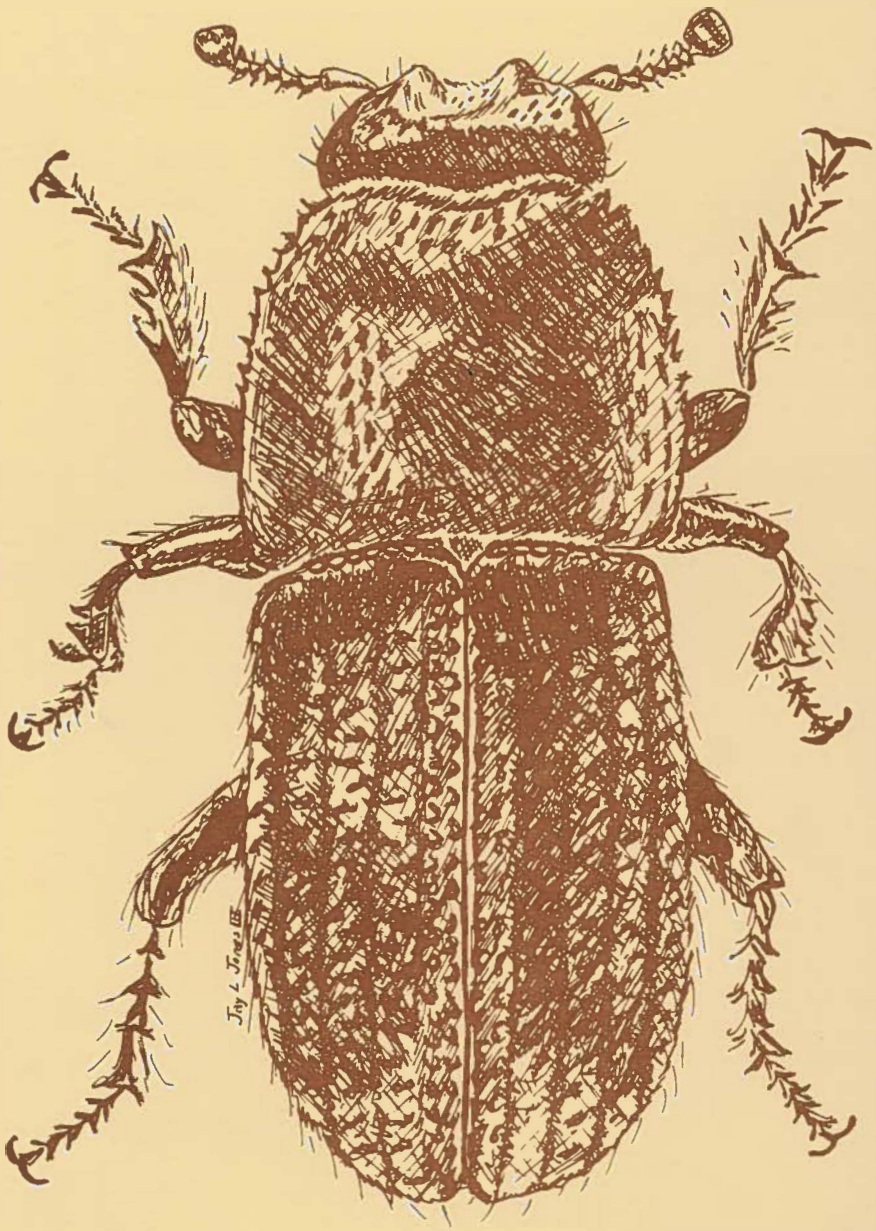
# FOREST PEST ACTIVITY 1971



CIRCULAR 210

TEXAS FOREST SERVICE

# FOREST PEST ACTIVITY IN TEXAS-1971

FOREST PEST CONTROL SECTION
Lufkin, Texas

**Private Forest Industry**
**U. S. Forest Service**
**Texas Agricultural Extension Service**
**and**
**Texas Agricultural Experiment Station**
**Cooperating**

TEXAS FOREST SERVICE
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# Forest Pest Activity in Texas-1971

## Introduction

Originally requested by the Texas Forest Pest Committee, this report is used to record the annual losses caused by forest pests and to serve as a historical record of forest pest activity in Texas.

Only those pests causing economic losses and concern to landowners of Texas are reported herein.

During 1971, as in the past, bark beetles were the most economically important pests of Texas forests. Other forest pests which have caused concern during the year include the pine tip moth, town ant, variable oakleaf caterpillar, pine sawfly, twig girdler, seed and cone insects and needle cast.

## Bark Beetles

Five species of bark beetles cause losses in the forests of East Texas. The most important of which is the southern pine beetle, *Dendroctonus frontalis* (Coleoptera:Scolytidae). The black turpentine beetle and three species of Ips engraver beetles also do considerable damage when at high population levels.

SOUTHERN PINE BEETLE. The area where southern pine beetle infestations occur is located principally within Texas Forest Service Administrative Districts 3, 4, 5 and 6 (Figure 1).

Monthly southern pine beetle aerial detection flights were initiated during March, 1971 (Table 1), and were continued into December of the year. Multiple tree spots consisting of five or more trees were recorded. Private landowners were informed of infestations on their property and instructed, when necessary, as to proper management techniques.

Comparisons can be drawn between 1971 and previous years by referring to Figure 2. In 1971 fewer spots were detected than in 1966-1969; however, more spots were detected in 1971 than in 1970.

In 1971 a total of 1376 spots, containing an estimated 42,445 trees, were detected by aerial observation. Not all spots detected from the air were southern pine beetle spots. Upon ground checking, some spots were found to be caused by Ips beetles, black turpentine beetles, fire, or some other causal agent such as needle cast.

Data from TFS ledger books show that 1097 spots of the total 1376 were confirmed as caused by southern pine beetle. Table 2 is a breakdown of confirmed SPB spots by administrative districts.

TABLE 1. Spots Detected by Aerial Observation During 1971.

| Month | Spots Detected |
|---|---|
| March | 11 |
| April | 19 |
| May | 278 |
| June | 370 |
| July | 202 |
| August | 137 |
| September | 72 |
| October | 40 |
| November, December | 247* |
| Total | 1376 |

*Additional spots received by the Districts from incidental flights not on a monthly basis and from private or industry personnel.

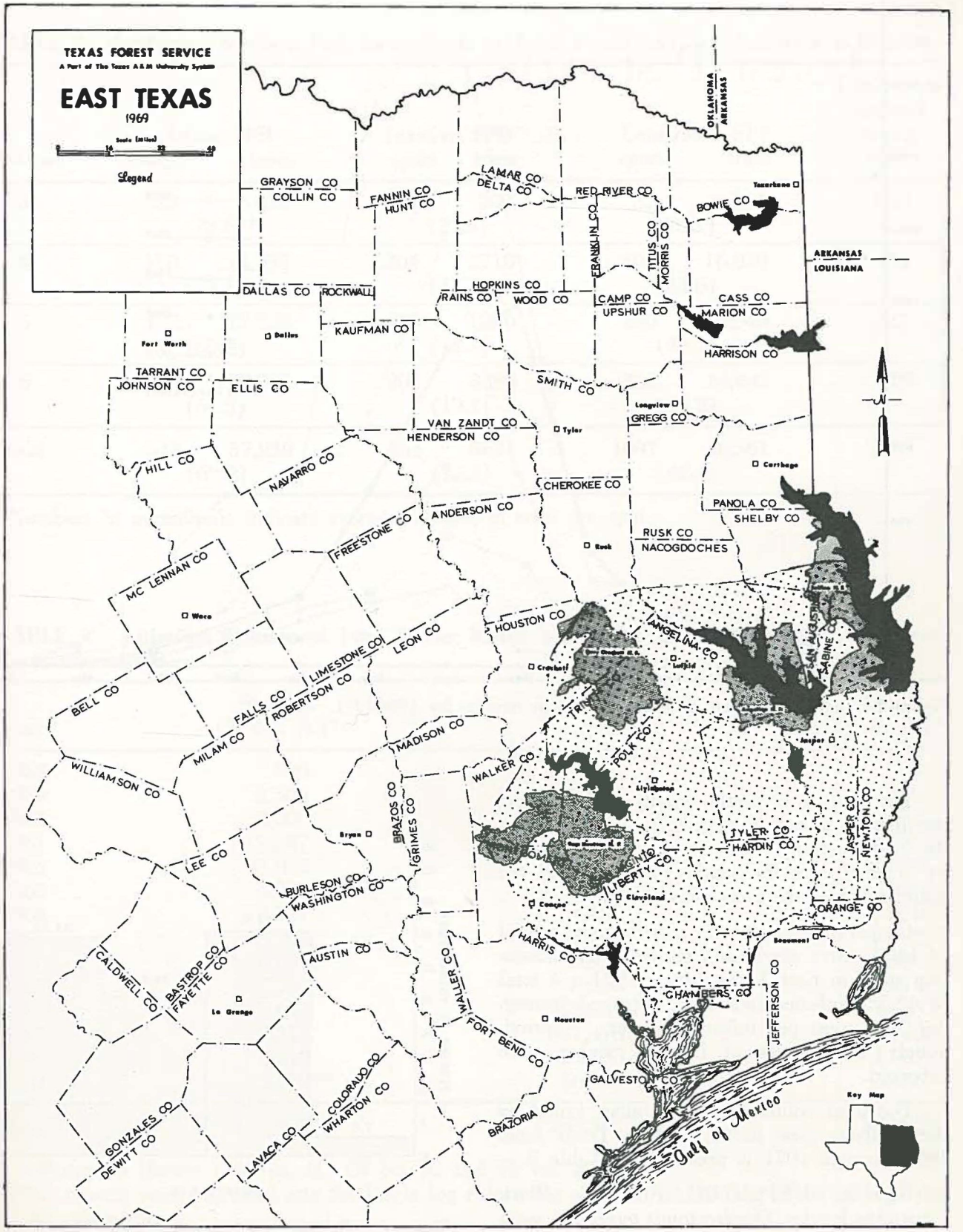


Figure 1. Southern pine beetle infestation area in East Texas.

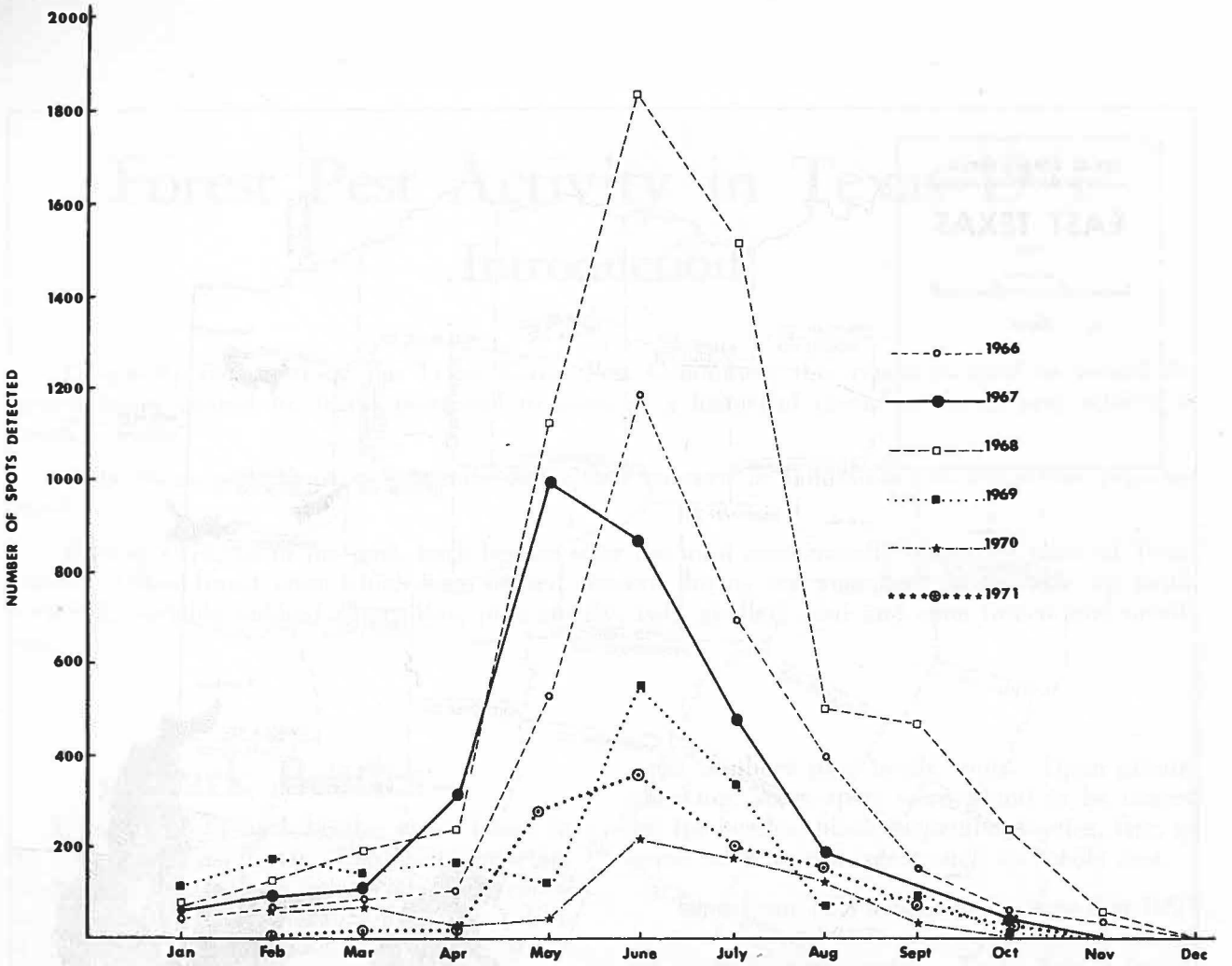


Figure 2. Detected southern pine beetle spots by months for 1966-1971.

The amount of beetle activity varies among the districts as can be expected. District 3 had the lowest activity. District 4, followed closely by District 6 in the southernmost part of the State, reported the most activity (Figure 3).

Cooperating landowner reports show a total of 1408 active single and multiple-tree infestation spots in East Texas during 1971. A total of 42,558 infested trees were salvaged, averaging 30.2 trees per infestation spot. Approximately 1340 acres of infested timber were salvaged.

The total volume of pine timber killed by the southern pine beetle in East Texas from 1958 through 1971 is presented in Table 3.

BLACK TURPENTINE BEETLE. Black turpentine beetles, *Dendroctonus terebrans*, were reported in all seven Texas Forest Service Districts during 1971. There has been no indica-

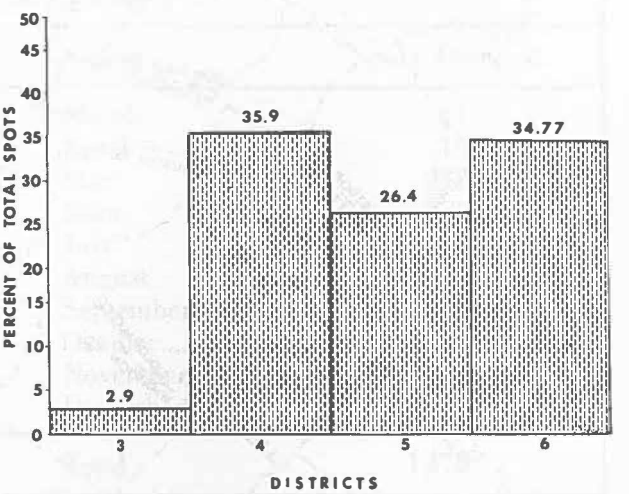


Figure 3. Relative southern pine beetle activity in Texas Forest Service Districts 3, 4, 5 and 6.

TABLE 2. Confirmed Southern Pine Beetle Spots by Texas Forest Service Administrative Districts.

| District | Active SPB spots | Active SPB trees | Inactive SPB spots | Inactive SPB trees | Confirmed SPB spots | Confirmed SPB trees | Total spots detected during 1971 |
|---|---|---|---|---|---|---|---|
| 3 | 23 | 658 (28.6)* | 9 | 203 (22.5) | 32 | 861 (26.9) | 240 |
| 4 | 190 | 14,092 (74.1) | 204 | 2718 (13.3) | 394 | 16,810 (42.6) | 405 |
| 5 | 152 | 12,228 (80.4) | 138 | 1820 (13.1) | 290 | 14,048 (48.4) | 317 |
| 6 | 178 | 10,952 (61.5) | 203 | 3890 (19.1) | 381 | 14,842 (38.9) | 414 |
| Total | 543 | 37,930 (69.8) | 554 | 8631 (15.5) | 1097 | 46,561 (42.4) | 1376 |

*Numbers in parenthesis indicate average number of trees per spot.

TABLE 3. Estimated Volume of Pine Timber Killed by the Southern Pine Beetle in Southeast Texas since 1958.

| Year | Sawlogs (M bd. ft.)* | Pulpwood (Cords)* | Total (M cu. ft.)* |
|---|---|---|---|
| 1958 | 500 | 0 | 84 |
| 1959 | 2,500 | 2,500 | 598 |
| 1960 | 8,000 | 8,000 | 1,912 |
| 1961 | 17,887 | 24,000 | 4,715 |
| 1962 | 93,043 | 111,110 | 23,538 |
| 1963 | 4,084 | 1,920 | 820 |
| 1964 | 2,501 | 1,420 | 520 |
| 1965 | 3,797 | 7,743 | 1,192 |
| 1966 | 6,256 | 6,930 | 1,544 |
| 1967 | 7,194 | 8,566 | 1,818 |
| 1968 | 17,644 | 22,037 | 4,533 |
| 1969 | 7,341 | 7,478 | 1,760 |
| 1970 | 4,318 | 14,730 | 1,782 |
| 1971 | 3,872** | 66,933 | 5,466 |
| Total | 178,937 | 283,367 | 50,282 |

*Conversion factors (167 cu. ft.)/M bd. ft. and 72 cu. ft./cord.

**All reports were converted into the Doyle log rule using a 15" DBH, 16' log as the average size for conversion.

tion that this pest has been any more devastating this year than in the past. However, reports of a more serious nature seem to be associated with logging operations and homesites where trees were damaged during land preparation. This fact seems to confirm the belief that trees predisposed in some manner (fire, lightning, drought, mechanical damage, windstorm, etc.) are more susceptible to attack than healthy trees. Salvage logging was recommended in forest situations with an application of benzene-hexachloride to be used only on high value trees near homes.

IPS ENGRAVER BEETLES. Three species of engraver beetles are responsible for damage to timber in East Texas: *Ips avulsus, I. grandicollis,* and *I. calligraphus.*

Ips beetles have been observed damaging pines in all districts by Texas Forest Service personnel. Damage was light in the first three and the last three months of the year. However, Ips beetle activity was more pronounced from April to September.

Individual reports of up to 200 trees killed have been recorded in TFS District 1, Linden. Loblolly, *Pinus taeda,* and slash pine, *P. elliottii,* have been the species most often attacked. Management recommendations for forest situations have been salvage logging.

# Defoliators

PINE TIP MOTH. The Nantucket pine tip moth, *Rhyacionia frustrana,* is found throughout East Texas. The larval stage is especially destructive to loblolly and shortleaf pines. During 1971, several reports of pine tip moth have come in from Walker, Fayette and Bastrop Counties and from those counties included in TFS District 1, Linden. One report stated that 98 percent of the young shortleaf pines on several thousand acres have been affected.

TOWN ANT. The town ant or Texas leaf-cutting ant, *Atta texana,* (Figure 4) has been found scattered over all of East Texas, but have been most serious in the following counties: Bastrop, Nacogdoches, Shelby, Rusk, San Augustine, Waller, Newton and Caldwell. Town ants are quite destructive to pine seedlings. During 1971 several thousand pine seedlings were defoliated by the pest. Mirex bait has been used to control the Texas leaf-cutting ant.

VARIABLE OAKLEAF CATERPILLAR. The defoliation of oak trees by the variable oak-leaf caterpillar, *Heterocampa manteo,* during October and November caused much concern throughout East Texas. This pest defoliated oak trees of many species. No major damage occurred to the trees since the defoliation occurred late in the growing season, just prior to natural leaf loss.

RED-HEADED PINE SAWFLY. The pine sawfly, *Neodiprion leconte,* damaged pines in Wood, Rusk, Panola, Colorado and Walker Counties in 1971. One report of 500 loblolly pines being attacked came from Walker County. Overall, the sawfly problem has been light compared to 1969.

TWIG GIRDLER. Twig girdlers of the genus *Oncideres* (possibly *cingulata*) have caused concern among pecan growers and landowners in the central portion of East Texas (Figure 5). Tree species affected also included oak, persimmon, hickory and birch. This problem seemed to focus in many pecan orchards near Grapeland, Texas. Due to little knowledge about this insect a small project has been initiated to study the life cycle and habits of this pest.

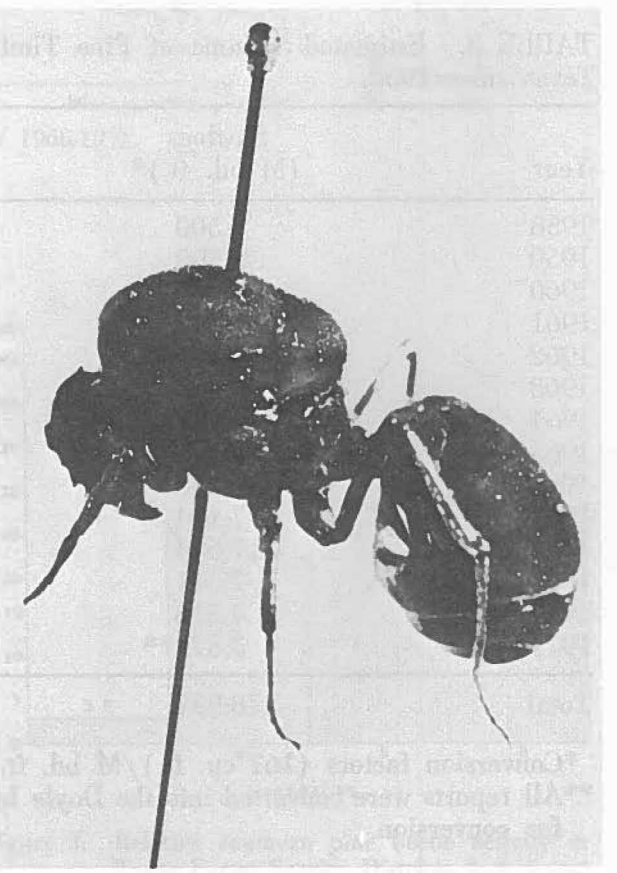

**Figure 4. Texas leaf cutting ant, *Atta texana.***

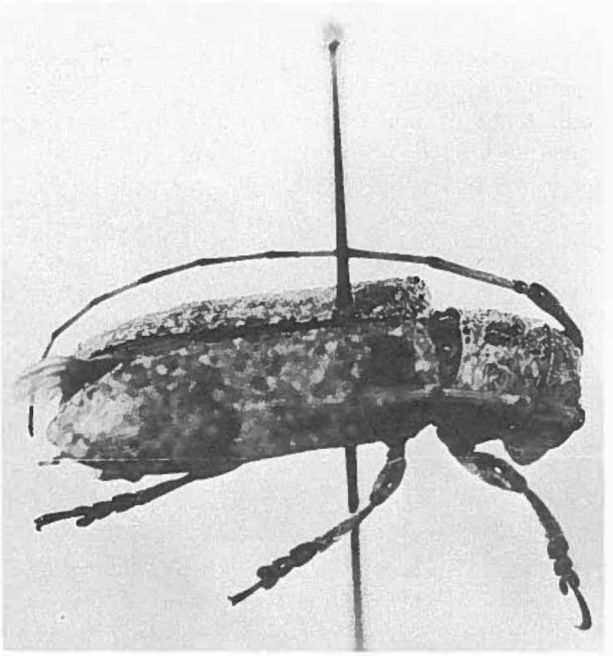

Figure 5. Twig girdler of the genus *Oncideres*.

# Seed and Cone Insects

Seed orchards and seed production areas in Texas have again experienced heavy losses from seed-and cone-destroying insects. The *Dioryctria* coneworms are responsible for most of the easily detectable damage.

The taxonomic status of insects in the genus *Dioryctria* has been resolved somewhat through a cooperative study between the Texas Forest Pest Control Section and taxonomists in the Canadian Department of Agriculture. There are four species of *Dioryctria* which attack loblolly pines in East Texas: *D. amatella, D. clarioralis,* and two previously undescribed species which have been designated as *Dioryctria* new species 1 (Figure 6) and 2 (Figure 7). The *Dioryctria* new species 1 has been previously incorrectly referred to as *D. zimmermani. Dioryctria* new species 2 is apparently an unreported and undescribed species.

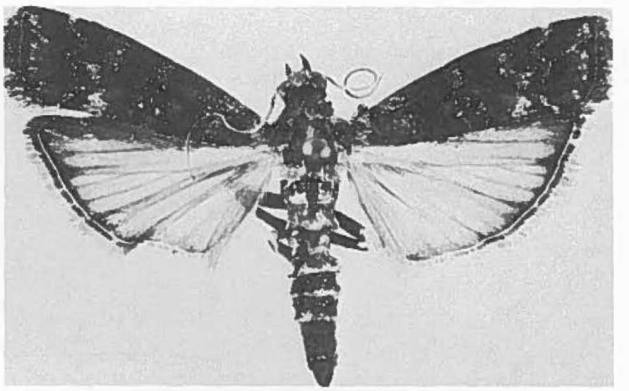

Figure 6. *Dioryctria* new species 1.

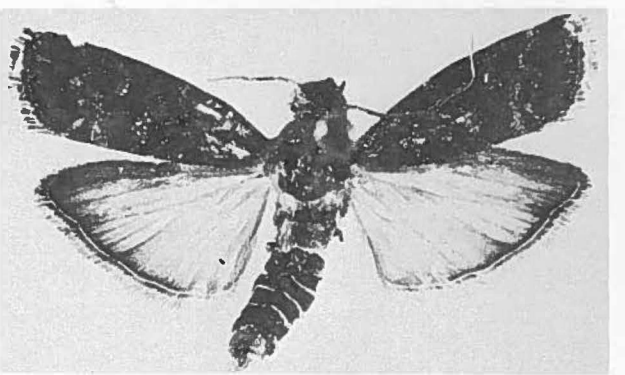

Figure 7. *Dioryctria* new species 2.

# Diseases

Needle cast of loblolly pine is caused by the fungus, *Hypoderma lethale.* It was reported in all Texas Forest Service districts during April, May and June of 1971. Although it is thought not to actually cause death of the pine, homeowners and foresters throughout the South were concerned about the brown appearance, possible growth loss, and loss of the needles. Evidence of an infection is ephemeral in nature and becomes unnoticeable after the brown needles are replaced.

# Personnel

Robert N. Coulson ..... Principal Entomologist
Forrest Lee Oliveria ..... Post Doctorate
Garland N. Mason ..... Entomologist II
Mark W. Houseweart ..... Entomologist II
Pauline Fagala ..... Clerk I
Harry Stephen Adams ..... Seasonal Helper
Janet New Stine ..... Seasonal Helper